



# Inspection technology for the 21st century

# Welcome to the world of state-of-the-art inspection & control systems for the drinks and food industry



KS inspection technology

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 CLIP N' CLOSE

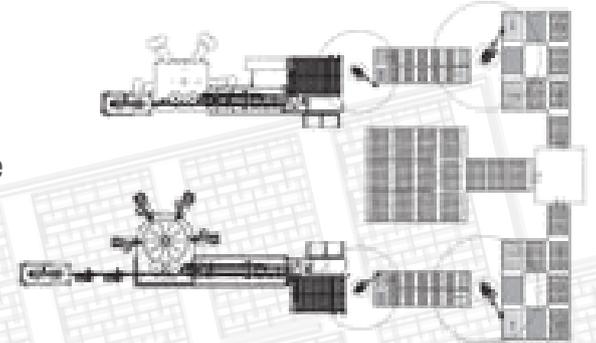
Clip top bottle closer

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KS inspection and control systems are specially adapted to the requirements of mid-size breweries and bottling plants. They impress three times over: on account of their compact dimensions which also allow them to be retrofitted in existing bottling plants, their fail-safe fault detection thanks to state-of-the-art camera, lighting and visualization technology and a flexible application of the individual inspection steps.

## We are system solvers – in project planning and control of integral plants

As specialist for automatic process control meeting all practical requirements, we devise up-to-the-minute, future-proof system solutions and plant link-ups which as envisaged under „INDUSTRIE 4.0“ economically align product flow automation with product safety in inspection and control technology.



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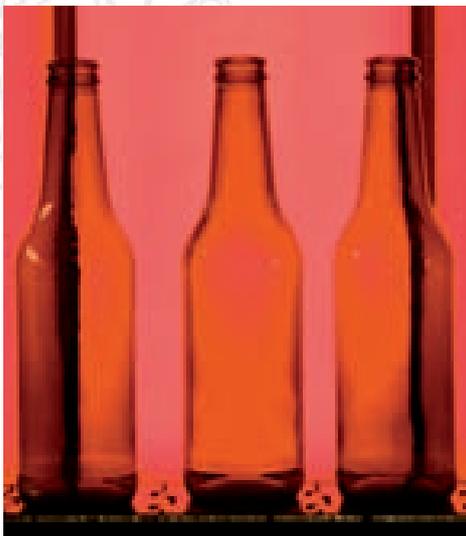
### Camera technology

We only deploy the newest, high-grade cameras and lenses with gigabit Ethernet/USB-3.0 interfaces in our inspection systems. They bring about optimum fault detection under high resolutions and a rapid processing speed.



Innovatively interlinked, tried-and-tested in practice and future-proof:

our inspection and control components represent the most advanced stage reached in inspection technology



#### Lighting technology

For the greatest possible fault detection, we use energy-saving high-intensity LED and coaxial lighting. This is to ensure an even illumination of the object to the exclusion of any shadows.



#### Data processing

Provided by our tailored hardware and software is a high detection accuracy under maximum flexibility in the configuration. This is achieved on the hardware side by a variable number of fan-free compact industrial PCs and on the software side by a modularly developed concept with an individual extension potential



#### Control technology

Our highly specialised staff both draft and implement the control technology for our systems. To this end, control cabinets are individually designed and the hardware wired in keeping with electrical design circuit diagrams. Tailor-made hardware and software enable the maximum detection quality of the inspection to be achieved.



#### Vision and traceability

Touch screen inputs ensure a self-explanatory operation of the systems. Images are used to display the individual views such as sorter selection, overview statistics, live pictures and test bottle logging.

# KS milestones for optimal empty bottle and swing-top inspection

## Precision bottle alignment (pat.)

As regards precision bottle alignment for the inspection of swing tops with bottle neck, rubber seal and external logo, the KS inspection systems are fitted out with a camera-controlled and servomotor-driven belt station operating at various speeds.

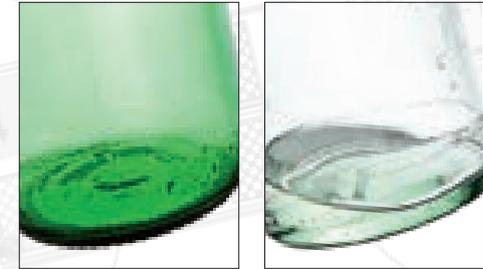
The bottles arriving are exactly turned and aligned. Faulty bottles with, for instance, missing caps or jammed/bent clips and which cannot be aligned are not inspected. A monitored ejection system removes them from the production process once they have gone through the cycle.

## No-contact, hygienic clip lift (pat.)

A 100% swing-top bottle inspection This assumes not only checking the swing top head and the rubber seal but also accurately monitoring the bottle neck without any interfering contours from the wire clip or the clip head.

To meet these requirements, KS CONTROL devised a globally unique inspection technology based on contact-free clip raising during the entire inspection operation. For the first time this has allowed a swing-top to be 100%-inspected without any interfering contours from hanging clips and without any contact made with the sealing surfaces of bottle and cap.





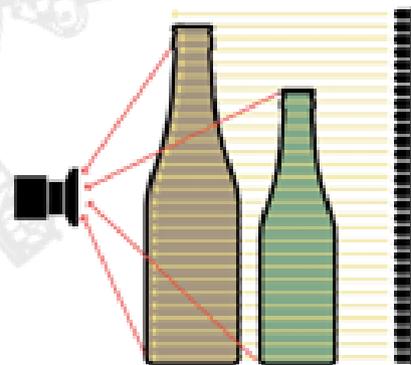
### Innovative and efficient empty bottle inspection

The outstanding features of the KS inspection equipment revolves around considerable flexibility from partial through to total inspection and maximum product safety achieved from state-of-the-art inspection technology in the most confined of spaces. Oriented very much to practical applications and with all the inspection scope of comparable yet significantly more complex and larger equipment, the KS inspection equipment is specially designed for the requirements of mid-size breweries and bottling plants.

Our inspection systems process the entire range of the most common types of bottles and jars when either dry or wet – to the exclusion of any modifications or additional parts. KS inspection systems for both new plants and plant modernization represent a future-proof investment in many respects. They come over well thanks to their packaging processing flexibility, their ease in matters of plant integration and low-cost retrofitting.

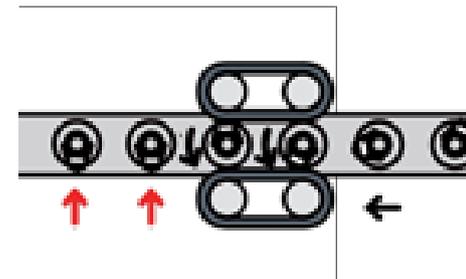
### External bottle detection

A compact camera and lighting station can be integrated at the machine intake point for detection of external bottles based on size, diameter, shape and colour and for embossing detection. The external bottles are reliably removed from the production process before they get into the system.



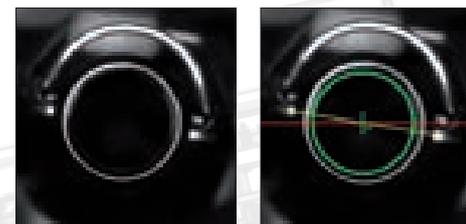
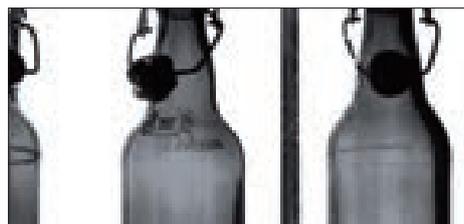
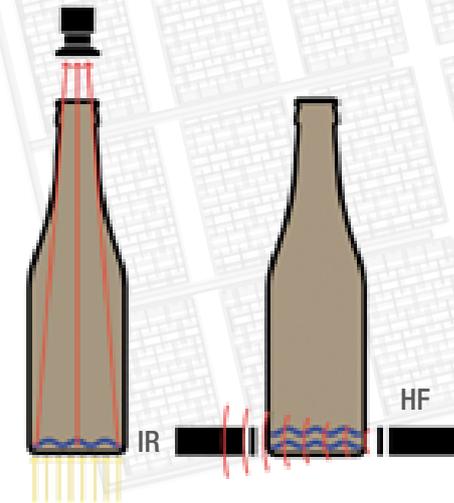
### Clip alignment

As regards precision bottle alignment of swing-tops, the KS Clip Check and XPlorer Duo are fitted with a camera-controlled and servomotor-driven belt station operating at various speeds. The bottles coming in are precisely turned and aligned. Faulty bottles which cannot be aligned with, for instance, missing caps or jammed/bent clips are not inspected.



### Residual liquid detection IR/HF

We deploy high-frequency measurements (HF) and infra-red measurements (IR) for liquor detection and residual liquids, respectively. The high frequency field involved with an HF measurement registers even the most minute liquor quantities at the base. Infra-red sensors assuredly detect any non conductive liquids, such as paints and oils.





### Base inspection

LED Bottom-Up LED lighting is used to analyse a particularly high-contrast image of package bases when they are being inspected. Filters blend out any structures, such as stamps, embossing or knurling marks, leading to assured detection of any kind of foreign matter or damage.

### Thread inspection

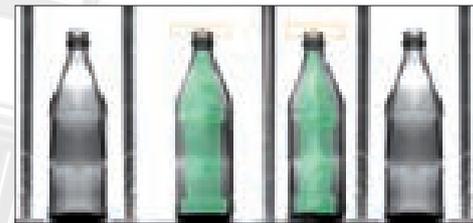
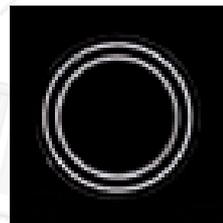
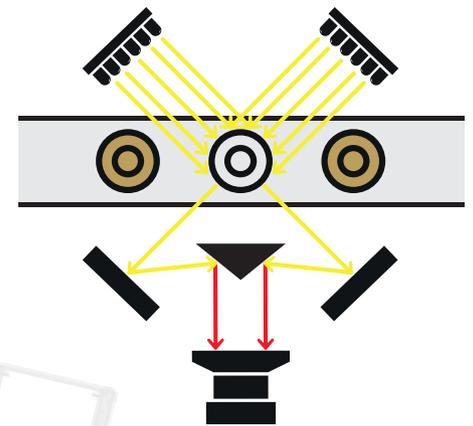
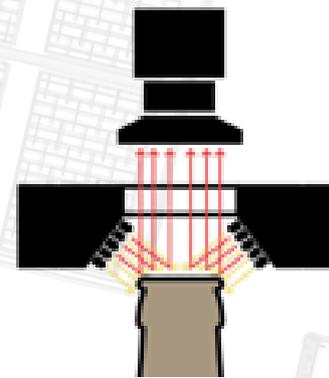
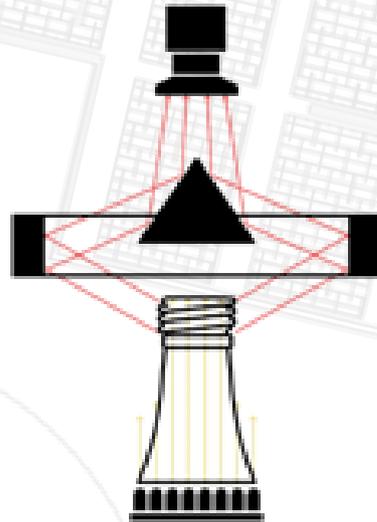
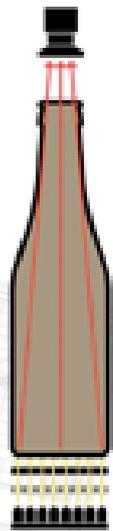
The XPlorer<sup>2</sup> thread detector inspects screw tops of whatever thread geometries. Various mirrors are used to process the thread pitches of whatever number and to examine any critical signs of wear or damage.

### Sealing surface and mouth inspection

High-intensity cameras complete with LED coaxial light stations integrated in the machine head dependably detect any damaged sealing faces. The entire mouth is imaged and analysed as to faults. Nicks, flaking, damage, stress cracks, rust stains and deposits are automatically registered and the packagings in question are taken out of the production process.

### 360° side wall inspection

For side wall detection with complete all-round visibility, we use a special mirror station at the bottle inlet and outlet. By means of 90° rotation in the belt station and the telecentric parallel inspection, cracks, impact marks, scuffing, paper residue and film are reliably detected over the entire bottle (360°), and the bottle is ejected.





### 100% swing-top inspection

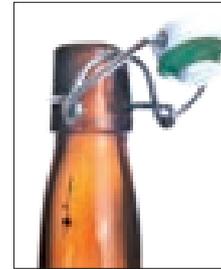
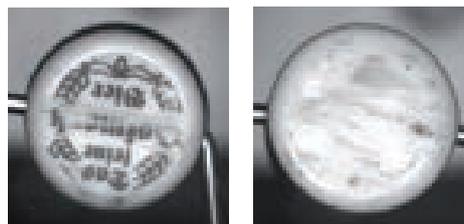
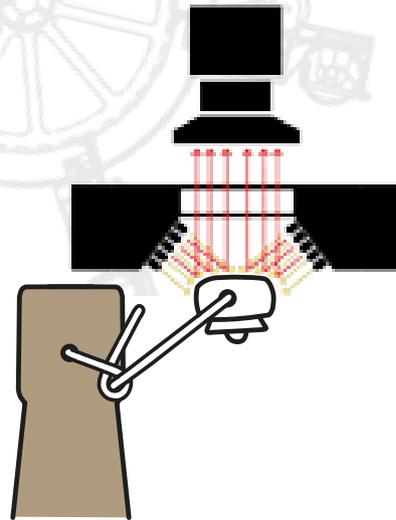
Beer drinkers in Germany are increasingly turning to the swing-top bottles. That is why mid-sized and regional breweries are putting their faith in the increasingly more popular bottles for their speciality beers. On the one hand, this emphasizes their craft-based brewery skills and, on the other, it meets today's trend for more individuality in the matter of drinks.

Responsible inspection of swing-top bottles is considerably more complex than an empty bottle inspection of the crown cork bottles usually met with on the market. Along with the empty bottle inspection and thanks to our patented, no-contact, hygienic clip raiser, it is now possible for the first time to rationally and completely inspect a swing-top in all performance classes.



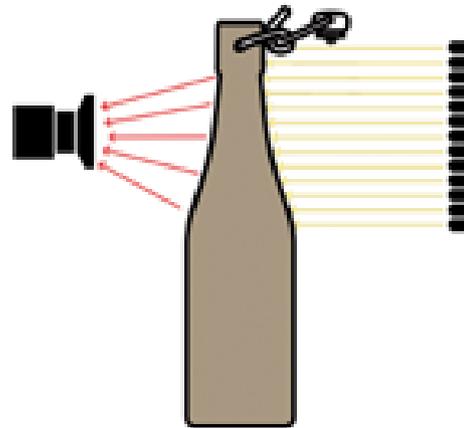
### Own and external logo detection

Specified reference images in a special camera/light configuration enable a distinction to be made between own and external logos and between damaged and rubbed-off inscriptions. Thus, one's own material is dependably extracted, for instance, in an external bottling operation.



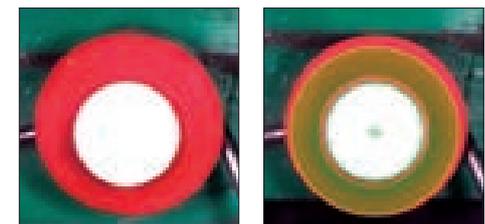
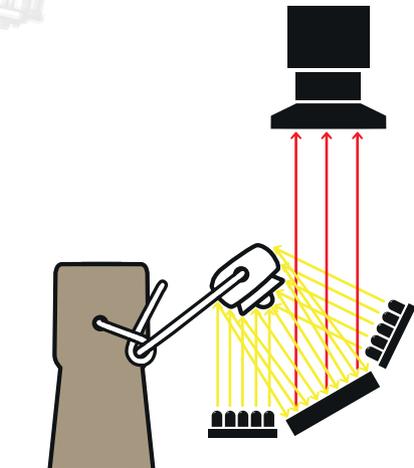
### Bottle neck inspection

The bottle neck is inspected with the clip raised - with no interfering contours or shadows at all - from hanging clips. For the first time this has ensured all-round detection of the neck.



### Rubber seal inspection

A colour camera and a special LED lighting station enable the various rubber colours to be distinguished and for any cracks, dirt contamination, seal-absence or damage to the clip ceramic to be detected.





## XPLORER<sup>2</sup>

### Empty bottle inspector

The XPlorer<sup>2</sup> inspection system has been specially devised for the rational empty bottle inspection of all glass containers commonly met with in the beverages industry. The smart modular kit system ensures that it can be flexibly set up from the individual to the full inspection.



## CLIP CHECK

### Swing-top inspector

The clip check specially designed for swing-tops inspects own and external logos, bottle neck and the rubber seal. Its patented raised clip position during all inspection steps brings about a 100% swing-top inspection for the first time.





## XPLORER<sup>2</sup> DUO

### Empty bottle and swing-top inspector

Developed very much on the XPLorer<sup>2</sup> empty bottle inspection and the Clip Check swing-top inspector, XPLorer<sup>2</sup> Duo perfectly combines empty bottle and swing-top inspection! And this is done in the most confined of spaces thanks to the ease with which the inspector can be retrofitted into existing plants.

When no swing-top bottles are being run, it then operates as an empty bottle inspector for all the usual kinds and sizes of bottles absolutely flexibly from the individual to the full bottle inspection.



## CLIP N' CLOSE

### Clip top bottle closer with linear design.

This new development from KS is ground-breaking in terms of hygiene, cost-effectiveness and functionality. From clip alignment to closing and closure monitoring, the CLIP N' CLOSE works using state-of-the-art MSR technology, and sets standards in the closing of all of the usual clip top bottles in breweries and bottling plants – hygienically and without touching the rubber seal.





## Empty bottle inspector

### Innovative, flexible, economical – for mid-size breweries and bottling plants

The smart XPlorer<sup>2</sup> module kit system impresses across the entire spectrum. From machine set-up to empty bottle inspection opportunities, it can be rationally fitted for individual inspection and full bottle inspection. Thanks to its compact dimensions and straightforward control integration, the XPlorer<sup>2</sup> is the perfect solution for new plants and plant modifications.

#### Inspection scope

- Base inspection
- Thread inspection
- Sealing surface/mouth inspection
- 360° side wall inspection
- IR residual liquid control
- HF liquor control

#### Modular set-up

An optimum, innovative machine construction suitable for daily operations - that is the way to best describe KS-CONTROL inspection machines. The standardisation of our systems brings about many benefits: efficiency, quality, short delivery times and an attractive price/performance ratio. Let the advantages of our production machines win you over! The KS XPlorer<sup>2</sup>, for instance, provides maximum flexibility in empty bottle inspection work. As the system is modularly designed it is straightforward and easily convertible. Another plus is that it can be extended to reflect customer needs.

#### Intuitive operating

The user-friendly touch screen which can be flexibly integrated at the machine and with a self-explanatory user surface, unlimited sorter pre-selection and a vision and traceability function even makes it possible for untrained personnel to be quickly familiarised with the operating and evaluating functions. Given that no interchange

parts are needed when switching over to other bottle and container types, the sorter can be changed in just a few minutes.

#### Remote service

Our remote services provide our customers with a rapid remote diagnosis with every access to the inspection parameters. In this way, machine settings can be optimized, if required. Our specialized service personnel is also there at all times to provide you with rapid and direct assistance on fault rectification questions. All steps are shown live on the display screen.

#### Test bottle programme

A specially prepared test container assortment - useable in any order - is available for testing the individual inspection units. The findings are shown on the display and stored for evaluation purposes.

#### Technical features and details

- Hygienic compact design in high-grade steel
- High-grade „Made in Germany“ machine engineering
- Requires little space
- Modular set-up from the individual to the full bottle inspection
- Processing of all the usual bottles and jars
- Fail-safe inspection of dry and wet containers
- Simple, pre-programmable and updatable sorting management
- Can be optimally integrated into new and existing plants
- All-in system integration including belt control from the washer to the filler
- Maximum detection fail-safeness thanks to ultra-modern CMOS camera technology
- Long-life, energy-efficient, high-performance LED lighting
- Integrated, future-proof network interface (Industrial, Ethernet, TCP/IP)
- Internet remote-service connection
- Touch screen with self-explanatory user interface for easy operating
- Comprehensive analysis of all the operating-relevant data

#### Performance range

- Up to 20,000 containers/hr
- Even higher performances are possible at any time thanks to our flexible modular system





### Detection systems

Deployed here are the latest high-resolution CMOS cameras with gigabit/Ethernet USB 3.0 interfaces. They create an optimum detection with a bandwidth in excess of 100 Mbyte/s and an 8 bit colour depth.



### Image processing

The tailored hardware and software of the machine-internal, fanless compact industrial PCs ensure a maximum quality of detection



### Machine head

Simple, motor-driven height adjustability from a precision counter for every bottle and container size.



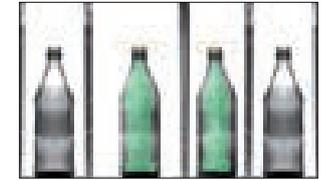
### Inspection stations

The mouth, sealing surface, base and residual liquid inspection stations installed in the machine head are flexibly adapted to requirements and are both activatable and disengageable.



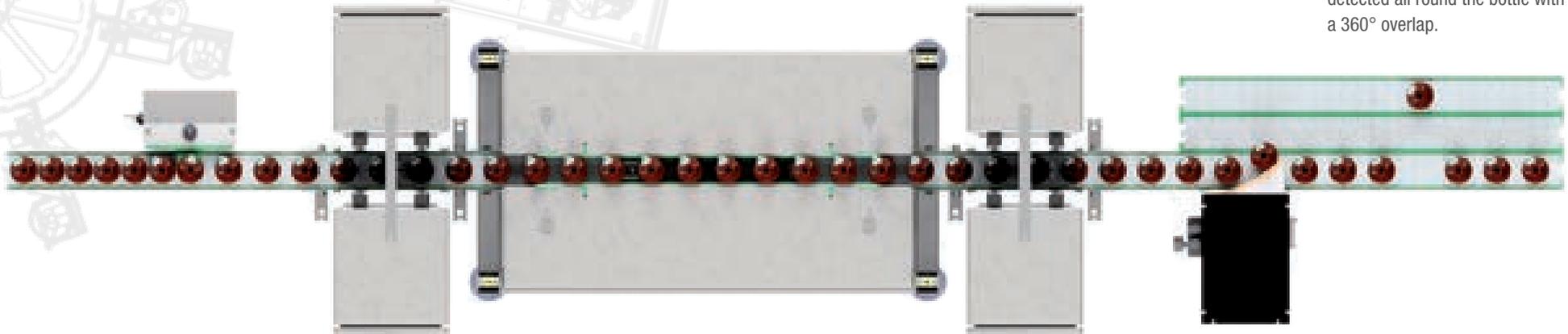
### Base inspection

An anti-reflection/shadow bottom-up is used for an all-over base inspection. This permits low-density foreign matter, such as foils and glass splinters, to be detected.



### 360° side wall inspection

A special Fresnel lens station at the bottle inlet and outlet. By rotating the bottle by 90° in the belt station and the telecentric parallel see-through, cracks, impact marks, scuffing, paper residue and film are reliably detected all round the bottle with a 360° overlap.



### Control panel

The touch screen has a self-explanatory user interface, an unlimited sorter pre-selection and a vision/traceability function. It can be flexibly installed at the machine inlet or outlet.



### Bottle separation

A motor-driven, light-barrier controlled star wheel ensures an optimum and exact form of bottle separation at the inlet.



### Servo drive

Special conveyor belt with synchronous running provide exact positioning in front of the individual inspection stations. The conveyor belt softgrip protects the containers to the best possible extent.



### Faulty bottle ejection

The specification determines whether a KS pusher or a KS linear ejector gently ejects faulty bottles out of the production process.



### Sealing surface and mouth inspection

The entire mouth is imaged and analysed as to faults. Nicks, flaking, damage, stress cracks, rust stains and deposits are automatically registered.



### Thread detection

The XPlorer thread detector examines screw tops over the entire thread geometry, whether there is only one thread or several. Various mirrors are used to process the thread pitches and to examine any critical signs of wear or damage.



## **CLIP CHECK** Swing-top inspector

### Fully automatic, contact-free and 100% hygienic thanks to the patented clip raiser

The Clip Check specially devised for swing-top fabricators in the beverages and food industry supplements the usual empty bottle inspection with an intelligent additional inspection system. Its patented raised clip ensures a 100% swing-top inspection - including the rubber seal - during every inspection step. This raised clip position makes it possible for the first time for the entire swing-top with bottle neck to be covered to the exclusion of any interfering contours. In addition, this position is ideal for inspecting the rubber seal inclusive of toggle and logos

#### Inspection scope

- Rubber seal inspection
- Bottle neck inspection
- Detection of own and external logos



#### Modular set-up

An optimum, innovative machine construction suitable for daily operations - that is the way to best describe KS-CONTROL inspection machines. The standardisation of our systems brings about many benefits: efficiency, quality, short delivery times and an attractive price/performance ratio. Let the advantages of our production machines win you over! The KS XPlorer<sup>2</sup>, for instance, provides maximum flexibility in empty bottle inspection work. As the system is modularly designed it is straightforward and easily convertible.

#### Intuitive operating

The user-friendly touch screen which can be flexibly integrated at the machine and with a self-explanatory user surface, unlimited

The patented, raised clip position without any contact to the sealing surfaces at the bottle and cap ensures a 100% hygienic inspection of the swing-top.

sorter pre-selection and a vision and traceability function ensures rapid familiarization with the operating and evaluating functions. Given no need for interchange parts when switching over to other container types, the sorter can be changed in just a few minutes.

#### Remote service

Our remote services provide our customers with a rapid remote diagnosis with every access to the inspection parameters. In this way, machine settings can be optimized, if required. Our specialized service personnel is also there at all times to provide you with rapid and direct assistance on fault rectification questions. All steps are shown live on the display screen.

#### Test bottle programme

A specially prepared test container assortment - useable in any order - is available for testing the individual inspection units. The findings are shown on the display and stored for evaluation purposes.

#### Technical features and details

- Hygienic compact design in high-grade steel
- High-grade „Made in Germany“ machine engineering
- Requires little space
- Modular set-up from the individual to the full bottle inspection
- Processing of all the usual bottles and jars
- Fail-safe inspection of dry and wet containers
- Simple, pre-programmable and updatable sorting management
- Can be optimally integrated into new and existing plants
- All-in system integration including belt control from the washer to the filler
- Maximum detection fail-safeness thanks to ultra-modern CMOS camera technology
- Long-life, energy-efficient, high-performance LED lighting
- Integrated, future-proof network interface (Industrial, Ethernet, TCP/IP)
- Internet remote-service connection
- Touch screen with self-explanatory user interface for easy operating
- Comprehensive analysis of all the operating-relevant data

#### Performance range

- Up to 15,000 containers/hr
- Even higher performances are possible at any time thanks to our flexible modular system





### Detection systems

The tailored hardware and software of the machine-internal, fanless compact industrial PCs ensure a maximum quality of detection



### Image processing

The tailored hardware and software of the machine-internal, fanless compact industrial PCs ensure a maximum quality of detection



### Machine head

Simple, motor-driven height adjustability from a precision counter for every bottle and container size.



### Inspection stations

The mouth, sealing surface, base and residual liquid inspection stations installed in the machine head are flexibly adapted to requirements and are both activatable and disengageable.



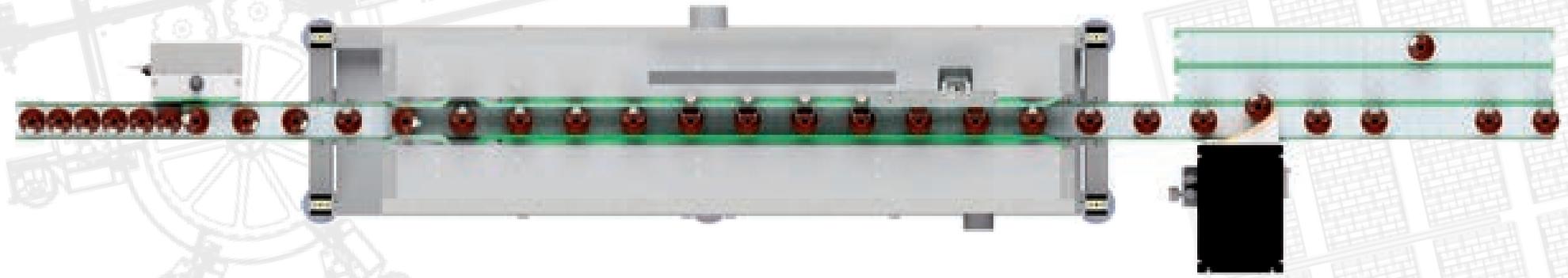
### Control panel

The touch screen has a self-explanatory user interface, an unlimited sorter pre-selection and a vision/traceability function. It can be flexibly installed at the machine inlet or outlet.



### Bottle separation

A motor-driven, light-barrier controlled star wheel ensures an optimum and exact form of bottle separation at the inlet.



### Bottle alignment station

For exact container alignment based on specific container features, such as clips etc., the bottles are aligned in a camera and servo-controlled belt station.



### Bottle neck inspection

The fact that the bottle neck is inspected with the clip raised means that all-round detection is ensured without any shadows being cast by the hanging clip.



### Own and external logo detection

A distinction can be made between own and external logos. If required, only own logos will be detected as 10" Own material can be extracted e.g. under external bottling conditions.



### Rubber seal inspection

A high-performance colour camera makes sure that detection regarding colour, cracks, contamination, rubber seal omissions, flaking and damage to the ceramic at the centre of the rubber seal is full-proof.



### Faulty bottle ejection

The specification determines whether a KS pusher or a KS linear ejector gently ejects faulty bottles out of the production process.



### Control cabinet

Our control cabinets are individually designed at our company and both set up, wired and tested on the basis of precision-designed circuit diagrams.



## Empty bottle and swing-top inspector perfectly combined

Developed very much on the XPlorer<sup>2</sup> empty bottle inspection and the Clip Check swing-top inspector, XPlorer<sup>2</sup> Duo perfectly combines empty bottle and swing-top inspection! And this is done in the most confined of spaces thanks to the ease with which the inspector can be retrofitted into existing plants.

Both inspection possibilities can be run in combination. If no checks are to be made on swing-top bottles, then the XPlorer<sup>2</sup> Duo operates as an empty bottle inspector – flexibly from the individual to the full bottle inspection.

### Inspection scope

- Base inspection
- Thread inspection
- Sealing surface and mouth inspection
- 360° side wall inspection
- IR residual liquid control
- HF liquor control
- Rubber seal inspection
- Bottle neck inspection
- Detection of own and external logos

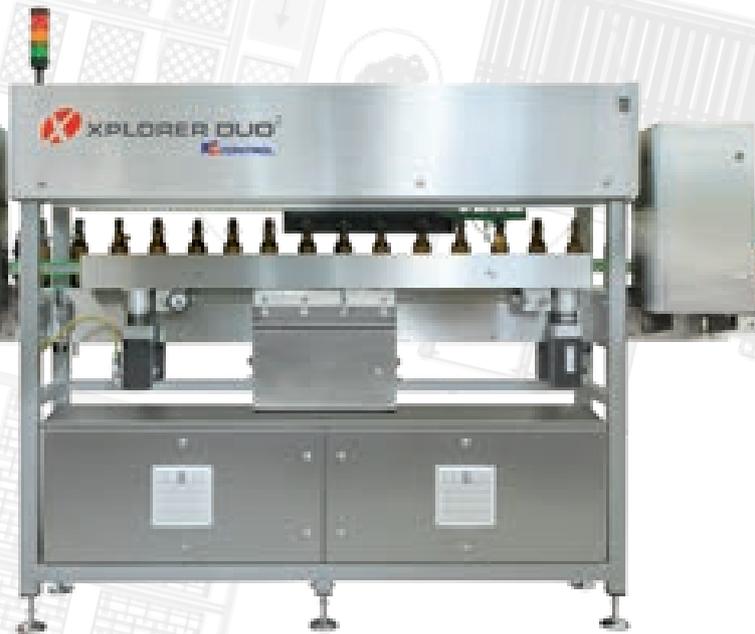


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### Intuitive operating

The user-friendly touch screen which can be flexibly integrated at the machine and with a self-explanatory user surface, unlimited sorter pre-selection



### Technical features and details

- Hygienic compact design in high-grade steel
- High-grade „Made in Germany“ machine engineering
- Requires little space
- Modular set-up for empty bottle and swing-top inspection.
- Separate inspection possible of empty bottles and swing-top bottles
- Treatment of all the usual beverage bottles and clip bottles
- Fail-safe inspection of dry and wet bottles
- Simple, pre-programmable and updatable sorting management
- Can be optimally integrated into new and existing plants
- System integration including belt control from the washer to the filler
- Maximum detection fail-safeness thanks to ultra-modern CMOS camera technology
- Long-life, energy-efficient, high-performance LED lighting
- Integrated, future-proof network interface (Industrial, Ethernet, TCP/IP)
- Internet remote-service connection possible
- Touch screen with self-explanatory user interface for easy operating
- Comprehensive analysis of all the operating-relevant data

The patented, raised clip position without any contact to the sealing surfaces at the bottle and cap ensures a 100% hygienic inspection of the swing-top.

and a vision and traceability function even makes it possible for untrained personnel to be quickly familiarised with the operating and evaluating functions. Given that no interchange parts are needed when switching over to other bottle and container types, the sorter can be changed in just a few minutes.

### Remote service

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### Test bottle programme

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### Performance range

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### Detection systems

Deployed here are the latest high-resolution CMOS cameras with gigabit/Ethernet USB 3.0 interfaces. They create an optimum detection with a bandwidth in excess of 100 Mbyte/s and an 8 bit colour depth.



### Image processing

The tailored hardware and software of the machine-internal, fanless compact industrial PCs ensure a maximum quality of detection



### Machine head

Simple, motor-driven height adjustability from a precision counter for every bottle and container size.



### Servo drive

For exact container alignment based on specific container features, such as embossing etc., the bottles are aligned in a camera and servo-controlled belt station.



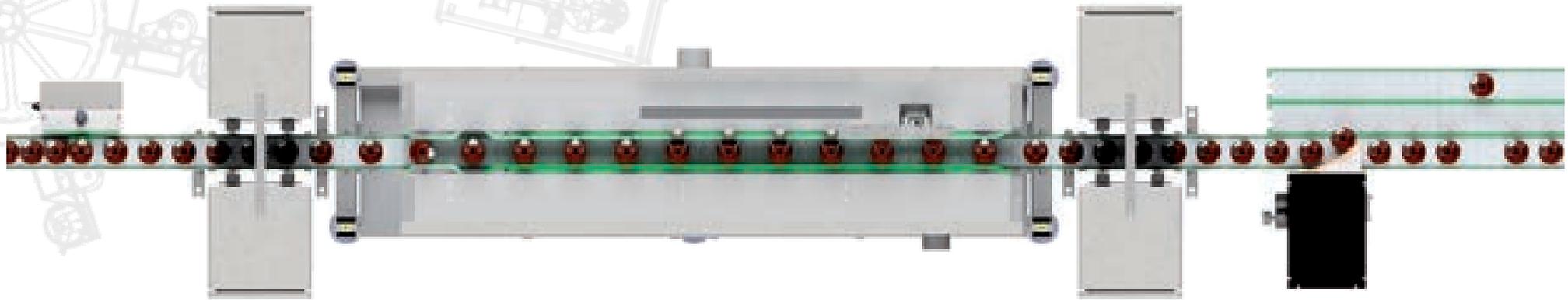
### Control panel

The touch screen has a self-explanatory user interface, an unlimited sorter pre-selection and a vision/traceability function. It can be flexibly installed at the machine inlet or outlet.



### Inspection stations

The mouth, side wall, base and residual liquid inspection stations installed in the machine head are flexibly adapted to requirements and are activatable and disengageable.



### Bottle neck inspection

The fact that the bottle neck is inspected with the clip raised means that an all-round 360° detection is ensured without shadows being cast by the hanging clip.



### Base inspection

An anti-reflection/shadow bottom-up is used for an all-over base inspection. This permits low-density foreign matter, such as foils and glass splinters, to be detected.



### Own and external logo detection

A distinction can be made between own and external logos. If required, only own logos will be detected as IO" Own material can be extracted e.g. under external bottling conditions.



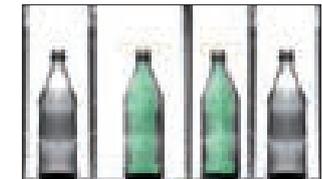
### Rubber seal inspection

A high-performance colour camera makes sure that detection regarding colour, cracks, contamination, rubber seal omissions, flaking and damage to the ceramic at the centre of the rubber seal is full-proof.



### Sealing surface and mouth inspection

The entire mouth is imaged and analysed as to faults. Nicks, flaking, damage, stress cracks, rust stains and deposits are automatically registered.



### 360° side wall inspection

A special Fresnel lens station at the bottle inlet and outlet with telecentric parallel inspection. 90° rotation in the belt station provides overlapping 360° all-round side wall detection.



## CLIP N' CLOSE

Swing top bottle closing machine with linear design



### Modular design

Precision engineering with a stainless steel hygiene design, innovative detail solutions and state-of-the-art drive and control technology: This is the best way to describe the KS CONTROL inspection, closure monitoring and swing top bottle closing machine. Standardizing our systems has many benefits: Efficiency and quality, short delivery times and an attractive price/performance ratio. Let yourself be impressed by the advantages of our series-produced machines. For example, the KS CLIP N'CLOSE provides maximum flexibility in the processing of all swing top bottles that are found in breweries and bottling plants without additional size parts.

Due to the patented, raised clip position without touching the sealing surfaces of the bottle and the top, it is possible to have swing top closure inspection that is 100 percent hygienic.

### Intuitive operation

The flexibility user-friendly touch screen with self-explanatory user interface that can be integrated in the machine, the unlimited product preselection and the vision and traceability function also make it possible for untrained personnel to quickly familiarise with the operating and evaluation functions. Because part replacement is not necessary when changing to different bottle and container types, product changes can be carried out in just a few minutes.

### Remote service

With our remote service, we provide our customers with quick remote diagnosis. In this way, machine settings can be optimised if necessary. Furthermore, you are provided with quick and direct help with troubleshooting functional problems at any time by our specialised service personnel. All steps are shown live on the display.

### Equipment and details

- Hygienic compact design in stainless steel
- High-quality mechanical engineering "Made in Germany"
- Low space requirements due to linear machine design
- Processing of all the usual swing top bottles and containers
- Simple, pre-programmable and updateable type management
- Can be optimally integrated into new and existing systems
- Complete system integration, including belt control
- Integrated, future-proof network interface (industrial, Ethernet, TCP/IP)
- Remote service connection via the Internet
- Simple touchscreen operation with self-explanatory user interface
- Extensive evaluation of all operation-related data

### Capacity

- Up to 15,000 containers/hr.
- More capacity is possible at any time because of our flexible modular system



### Servo drive

The servo drives provide exact rotation according to a specified, determined rotation angle and transport the containers through the belt station carefully and quietly.



### Container positioning

Machine internal, fanless special conveyor belts with servo drives ensure that the containers are positioned exactly and carefully transported through the machine.



### Camera-assisted container positioning

In order to position the containers exactly, the position of the rubber seal is determined in the infeed and the bottle is rotated by up to 180 ° using servo drives.



### Contactless clip positioning

The tongue is lifted contactlessly and hygienically using a magnetic coil and placed carefully on top of the container.



### Swing top closing station

The closing procedure takes place using an electrical closing die. The force that is required to close the clip is used to back-calculate the closure force and therefore whether the bottle has been properly closed.



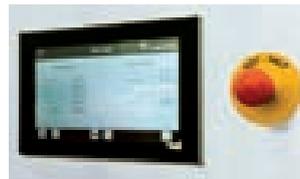
### Swing top closure monitoring station

The sensor-based closure monitor that is integrated in the Clip n' Close ensures that bottles which are not properly closed are ejected.



### Machine head height adjustment

Motorised height adjustment for different container heights via a precision counter for any bottle or container size



### Control panel

The touch screen integrated in the machine head has a self-explanatory user interface with product preselection and a vision and traceability function.



### Switch cabinet/controller

EPLAN and switch cabinet construction take place in-house. These are individually designed, assembled, wired and tested in accordance with VDE.



### Container separation in the machine infeed

Precise bottle separation at the machine infeed takes place using a motorised, light barrier-controlled star wheel.



### Reject bottle ejection

Reject bottles are carefully ejected from the production process by a KS pusher or KS linear ejector in accordance with requirements.



## FILL CHECK K

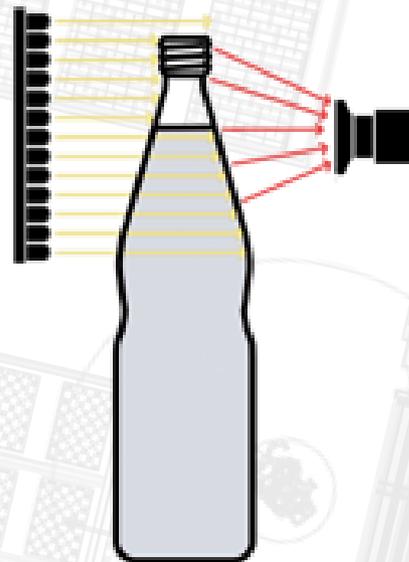
Camera-based autonomous fill level and cap check

This checking station for fill level and cap seating after the filler and capper is specially designed for retrofitting into existing bottling plants for disposable and reusable bottles. Compact and easy to install and integrate into the control system, it is the reliable and economical alternative to other much more elaborate systems.

The fill level and cap control checks on the presence of caps and on any unwanted inclined seating; also optionally available is the press-in depth of natural and synthetic cork caps and thread roll-in depth of screw tops.

### Performance

- Up to 36,000 containers/hr



### Technical features and details

- High-grade „Made in Germany“ machine engineering
- Ultra-modern, effective CMOS camera and a long-serving LED lighting technology
- Integrated, future-proof network interface (Industrial, Ethernet, TCP/IP)
- Requires little space
- System integration including belt control from the washer to the filler
- Straightforward menu-controlled operation of the touch screen
- Sorter pre-selection and traceability function
- Internet remote-service connection



### Modular set-up

An optimum, innovative machine construction suitable for daily operations - that is the way to best describe KS-CONTROL inspection machines. The standardisation of our systems brings about many benefits: efficiency, quality, short delivery times and an attractive price/performance ratio. This compact control station provides an example of the benefits of our production machines. As the plant is modularly designed it is easily and rapidly installed and can be integrated into the plant control system. Another plus is that it can be extended to reflect customer needs.

### Intuitive operating

The user-friendly touch screen which can be flexibly integrated at the machine and with a self-explanatory user surface, unlimited sorter pre-selection and a vision and traceability function even makes it possible for untrained personnel to be quickly familiarised with the operating and evaluating functions. Given that no interchangeable parts are needed when switching over to other bottle and container types, the sorter can be changed in just a few minutes.

### Remote service

Our remote services provide our customers with a rapid remote diagnosis with every access to the inspection parameters. In this way, machine settings can be optimized, if required. Our specialized service personnel is also there at all times to provide you with rapid and direct assistance on fault rectification questions. All steps are shown live on the display screen.

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**Sensor-based autonomous  
fill level and cap check**

This checking station for correct fill level and matching cap seating after the filler and capper has been specially developed for retrofitting into existing bottling plants for screw-top disposable and reusable bottles. Thanks to easy fitting and trouble-free integration into the control system, it represents the reliable and economical alternative to other much more elaborate equipment.

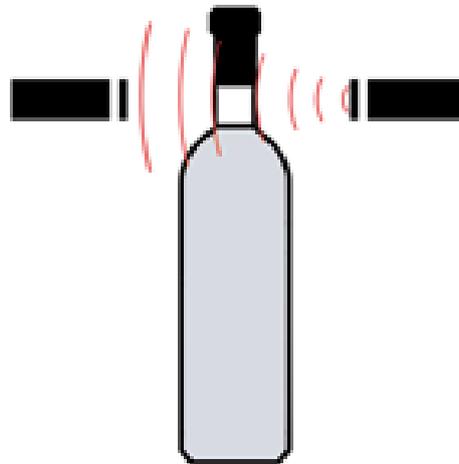
The fill level and cap check on screw top presence makes use of high-frequency measurements.

## Technical features and details

- High-grade „Made in Germany“ machine engineering
- Ultra-modern HF sensor technology which does not react to signal-falsifying foaming
- Integrated, future-proof network interface (Industrial, Ethernet, TCP/IP)
- Requires little space
- System integration including belt control from the washer to the filler
- Straightforward menu-controlled operation via the touch panel
- Sorter pre-selection and traceability function
- Internet remote-service connection

## Performance

- Up to 36,000 containers/hr

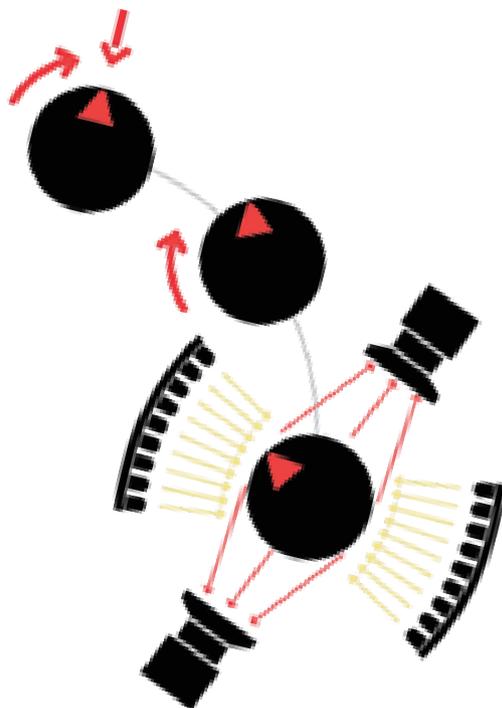




**ROTA**

**Camera-based container alignment for the labelling**

In addition to standard equipment, individual design bottles with special label equipment aligned precisely to the cap or other marks are becoming the norm. Whether swing-top, relief alignment marks on the base of the bottle or glass seam – our ROTA container alignment unit with state-of-the-art camera and LED lighting technology and servo-controlled turntables guarantees perfect container positioning before labelling.



**The perfect configuration – the most important decision criterion in buying !**

That doesn't surprise at all in the trade where advice is very much at a premium. After all, the label and bottle features provide the sole medium in the supermarket of getting across the wine grower's message or the brand to the consumer.

Our Rota container alignment achieved with the camera/lighting station and servo-controlled container turntables bring the features of Gemep, our customer, to the specified position to perfection. Whether it is the body/rear label or the front, seal or cap label we ensure controlled precision in actual appearance.

**Control integration including vision and traceability**

We, of course, ensure a link-up of all the machines and control systems including the faulty bottle ejecting stations. Operating is undertaken in the integrated machine control system or by means of a touch screen with self-explanatory user interface, unlimited sorter pre-selection and a vision/traceability function.

**Performance:**

- Up to 16,000 containers/hr



## LABEL CONTROL K

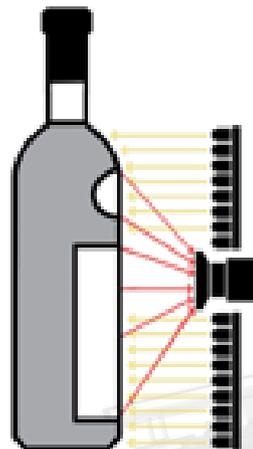
### Camera-based label control station

For label control purposes – involving a check on the presence of labels and their correct positioning – we devise and construct individual customized control stations deployed either in the machine loop or as external control stations downstream of the labelling machine. Container size and machine output determine how many high-performance cameras and LED coaxial lighting stations Label Control K has. They ensure a total 360° check of the containers. Particularly pleasing is the fact that this control station can be easily integrated into the machine control system. This enables labelling stations with no label control to be retrofitted without any difficulty.



#### Performance:

- Up to 36,000 containers/hr



## LABEL CONTROL S

### Sensor-based label control station

Label Control S is a stand-alone, sensor-based label control station for low-cost retrofitting into the transfer path downstream of the labelling station. Container size determines whether it operates with one or two sensor stations which can be manually adjusted to the respective label positions. It is specially designed for revamping existing bottling plants and features state-of-the-art sensor technology in its operation.

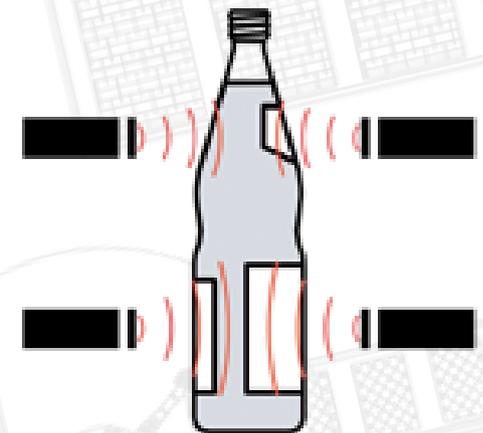
#### KS sensor technology

In special fields such as for low-cost label checking, we provide - in addition to our camera-supported inspection solutions - easy-to-integrate, sensor-based control stations which operate with all sensor-typical benefits in an absolute fail-safe manner. They can be easily and flexibly fitted/retrofitted without any complex periphery technology at the conveyor downstream of the labelling station. KS Label Control S comprises a main operating and processing unit and the required sensors for label controlling and synchronisation with machine and

transporter (optional). The software includes the algorithms for detecting any missing labels as well as tracking software for operating a subsequent diverting system.

#### Performance:

- Up to 36,000 containers/hr





**Linear ejector or pusher:**  
we provide for single-  
variety, trouble-free filling  
operations

For reliable and efficient ejection of incorrectly filled or empty bottles during plant operation on parallel belts, we provide the food and beverage industry - depending on the type of container and pant requirements - with robust and practice-proven proprietary products. They feature extremely low energy consumption and reliable functioning under continuous operations.

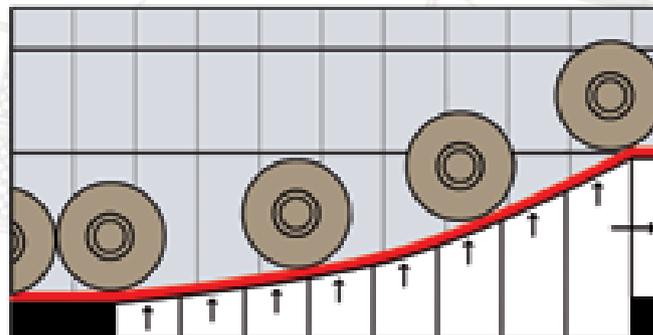


#### Pneumatic KS linear ejector

Thanks to its compact design, the multi-segment faulty bottle diverting system of the KS empty bottle and swing-top inspectors can be easily integrated into existing plants. Pneumatic operation of the expelling segments can be finely dosed and this ensures a gentle and fail-safe push-over onto single or multi-path parallel belts.

#### Performance:

- Up to 25,000 containers/hr



#### Pneumatic KS pusher

This robust, compact single segment ejector dependably removes both full and empty faulty bottles from the production flow. The application determines whether ejection is undertaken into a storage container or onto parallel belts.

#### Performance:

- Up to 50,000 containers/hr





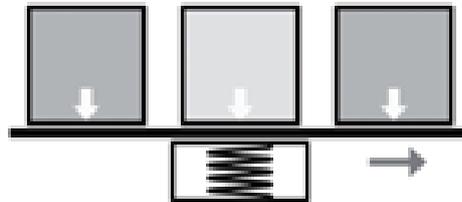
## **W** WEIGHT CONTROL

Automatic weight control of open and closed packages

KS Weight Control monitors the weight of filled packages such as the outer packaging of beverages, foodstuffs, pharmaceutical products and filled containers such as drums and wine in cartons. It is a compact, all-in-one solution that can be integrated at any time later into the conveyor belt. Any deviation in weight which is determined leads to ejection or plant stoppage. The stand-alone checking station has a number of precise, splash-proof platform load cells under the conveyor belt.

### Performance:

- On request



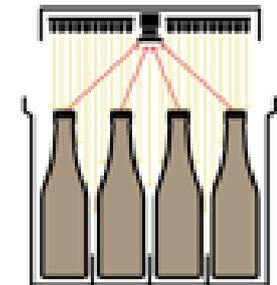
## **C** CAP CONTROL

Automatic full crate check of beverage crates and open cartons

KS Cap Control works simply and effectively and can be positioned anywhere on the conveyor belt. Crates or open cartons passing through are registered by a camera on the basis of the specified filling patterns. If the absence of one or more bottles is detected, this package is automatically signalled as faulty. Sorting out is either done acoustically with a belt stop for manual removal of the package or it is automatically ejected. Adjustment to differing package heights is undertaken by a flexible sorter management with individual pack patterns.

### Performance:

- Up to 4,000 packages/hr





Our inspection and checking systems are economical investments in new plant and plant modernisation



**Thought through on the practical side and implemented in keeping with the latest stage reached in inspection technology**

Our systems and software developments are optimally tailored to customer requirements. This provides for a maximum degree of operating efficiency, safety and functionality.

**Concept planning and development**

In concept planning and development of product/customer-specific inspection solutions, we benefit from the extensive findings emerging from the intensive cooperation undertaken with beverage machine manufacturers.

**Design (3D-CAD)**

Our design team has a long track record in the development and design of inspection and control equipment for the beverage and food industry.. We work here with state-of-the-art software.

**Electro-design (EPLAN)**

A fail-safe functioning plant is based upon the use of EPLAN for professional, precision-based control system and control cabinet planning and upon a standard-compliant documentation. This includes circuit diagrams, lists of parts, component lists of the control cabinets and an inspection list.

**Switchgear construction**

On the one hand, our electrical engineers and skilled workers ensure the creative implementation of wiring and PCB layouts. And on the other, the installation and wiring of control-related components, such as the operating panel and control cabinets, through to the the concept design and installation of all-in bottling plants.



Innovative technologies allow us to provide the basis for new automation, control and inspection standards again and again. Our advantage: we consider automation as a whole and focus particularly on semi-realistic solutions which can also be rationally and flexibly adapted to any subsequent requirements.

Our customers benefit from the synergies of the most varied of ultra-modern technologies which we deploy individually or combination - from rational production, economical assembly work, specific machine and plant solutions through to production control involving system integration of individual industrial software.



### Hardware, Software

As a specialist with a lengthy track record in plant and control technology, we have extensive findings at our disposal in both state-of-the-art inspection technologies and in the requisite hardware and software. In combination with our machine and control cabinet construction, our inspection and control equipment represents future-proof and flexibly developable all-in solutions..

### Machine construction

Our inspection systems come with a maximum of „Made in Germany“ machine construction quality. Their outstanding features include a high-grade, stainless steel machine construction, our modern camera and LED coaxial lighting systems, a cost-conscious developable module kit system and our market-compliant price/performance ratio.

### Services

Our systems run through an extensive in-factory test programme to ensure rapid on-the-spot assembly. We assume the entire mechanical and control-related machine integration, instruct your operating staff, deal with maintenance work arising, supply software updates and have original spare parts at the ready.

### Individual software solutions

How can costs for complex operations be optimized? With which IT solutions? Are ready-completed software products and specialised IT personnel a paying proposition for you?

If you are interested in outsourcing in this highly specialised field, then simply contact our specialised staff.



[www.kscontrol.de](http://www.kscontrol.de)

**Main Office:**

**KS Control GmbH**

Germanenstraße 2  
D-93098 Mintraching  
Phone: +49 (0) 9406 28449-0  
Fax: +49 (0) 9406 28449-29  
sales@kssr.de

**USA:**

**KS Control Inc.**

1200 Woodruff Rd  
Greenville, SC 29607, USA  
Tel: +1 (864) 729 8007  
office@kssr.us

